

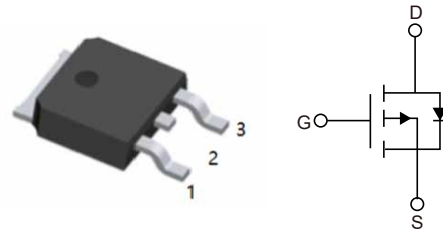
1.Features

- $V_{DS(V)} = -30V$
- $I_D = -70A (V_{GS} = -10V)$
- $R_{DS(ON)} < 6.8m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 11m\Omega (V_{GS} = -4.5V)$
- 175 °C operating temperature
- 100% Avalanche tested
- Pb-free; RoHS compliant, halogen free
- applications: power management

2.Pinning information

Pin	Symbol	Description
1	G	GATE
2	D	DRAIN
3	S	SOURCE

TO-252(DPAK)
top view



3.Absolute Maximum Ratings $T_J = 25^\circ C$

Parameter	Symbol	Conditions	Value	Units
Continuous drain current	I_D	$T_C = 25^\circ C$	-70	A
		$T_C = 100^\circ C$	-70	A
Pulsed drain current	$I_{D,pulse}$	$T_C = 25^\circ C^{(2)}$	-280	A
Avalanche current, single pulse	E_{AS}	$I_D = -70A, R_{GS} = 25\Omega$	149	mJ
Gate source voltage	V_{GS}		± 20	V
Power dissipation	P_{tot}	$T_C = 25^\circ C$	100	W
Storage temperature	T_J, T_{STG}		-55 to 175	$^\circ C$
ESD class		JESD22-A114 HBM	tbd	
Soldering temperature			260	$^\circ C$
IEC climatic category; DIN IEC 68-1			55/175/56	

Notes:

¹⁾ J-STD20 and JESD22



4. Electrical Characteristic ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Thermal resistance, junction -case	R_{thJC}				1.5	K/W
Thermal resistance, junction - ambient	R_{thJA}	6 cm ² cooling area ²⁾			50	K/W
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-150\mu A$	-1	-1.5	-2	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V, T_J=25^{\circ}\text{C}$		-0.1	-1	μA
		$V_{DS}=-30V, V_{GS}=0V, T_J=150^{\circ}\text{C}$		-10	-100	μA
Gate-source leakage current	I_{GSS}	$V_{GS}=-20V, V_{DS}=0V$		-10	-100	nA
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-45A$		7	11	m Ω
		$V_{GS}=-10V, I_D=-70A$		5	6.8	m Ω
Gate resistance	R_G			5.8		Ω
Transconductance	g_{FS}	$ V_{DS} >2 I_D R_{DS(ON)max}, I_D=-70A$	50	100		S
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-15V, f=1MHz$		5150	7720	pF
Output capacitance	C_{oss}			2090	3140	pF
Reverse transfer capacitance	C_{rss}			160	240	pF
Turn-on delay time	$t_{D(on)}$	$V_{DD}=-15V, V_{GS}=-10V$ $I_D=-70A, R_{G,ext}=6\Omega$		11	16.5	ns
Rise time	t_r			100	150	ns
Turn-off delay time	$t_{D(off)}$			84	126	ns
Fall time	t_f			31	47	ns
Gate to source charge	Q_{gs}	$V_{DD}=-15V, I_D=-70A$ $V_{GS}=0 \text{ to } -10V$		19	25	nC
Gate charge at threshold	$Q_{g(th)}$			8	11	nC
Gate to drain charge	Q_{gd}			8	13	nC
Switching charge	Q_{SW}			19	27	nC
Gate charge total	Q_g			68	91	nC
Gate plateau voltage	$V_{plateau}$			3.7		V



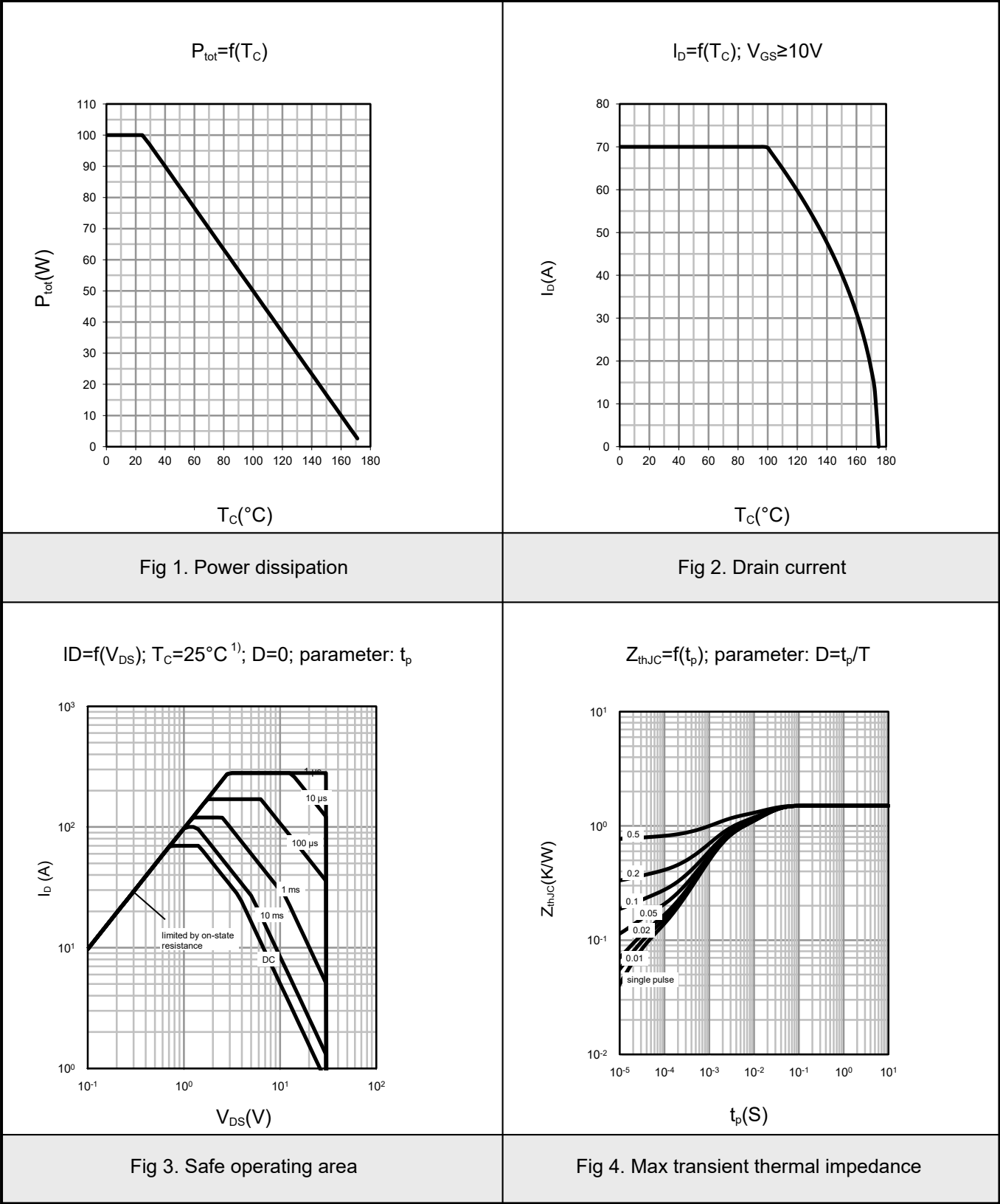
Output charge	Q_{oss}	$V_{DD}=-15V, V_{GS}=0V$		48	64	nC
Diode continuous forward current	I_S	$T_C=25^{\circ}C$			30	A
Diode pulse current	$I_{S,pulse}$				280	A
Diode forward voltage	V_{SD}	$V_{GS}=0V, I_F=-70A, T_J=25^{\circ}C$			-1.2	V
Reverse recovery time	t_{rr}	$V_R=15V, I_F=-70A, di_F/dt=100A/\mu s$		46	69	ns
Reverse recovery charge	Q_{rr}			44		nC

Notes:

2) Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm² (one layer, 70 μm thick) copper area for drain connection.
PCB is vertical in still air.

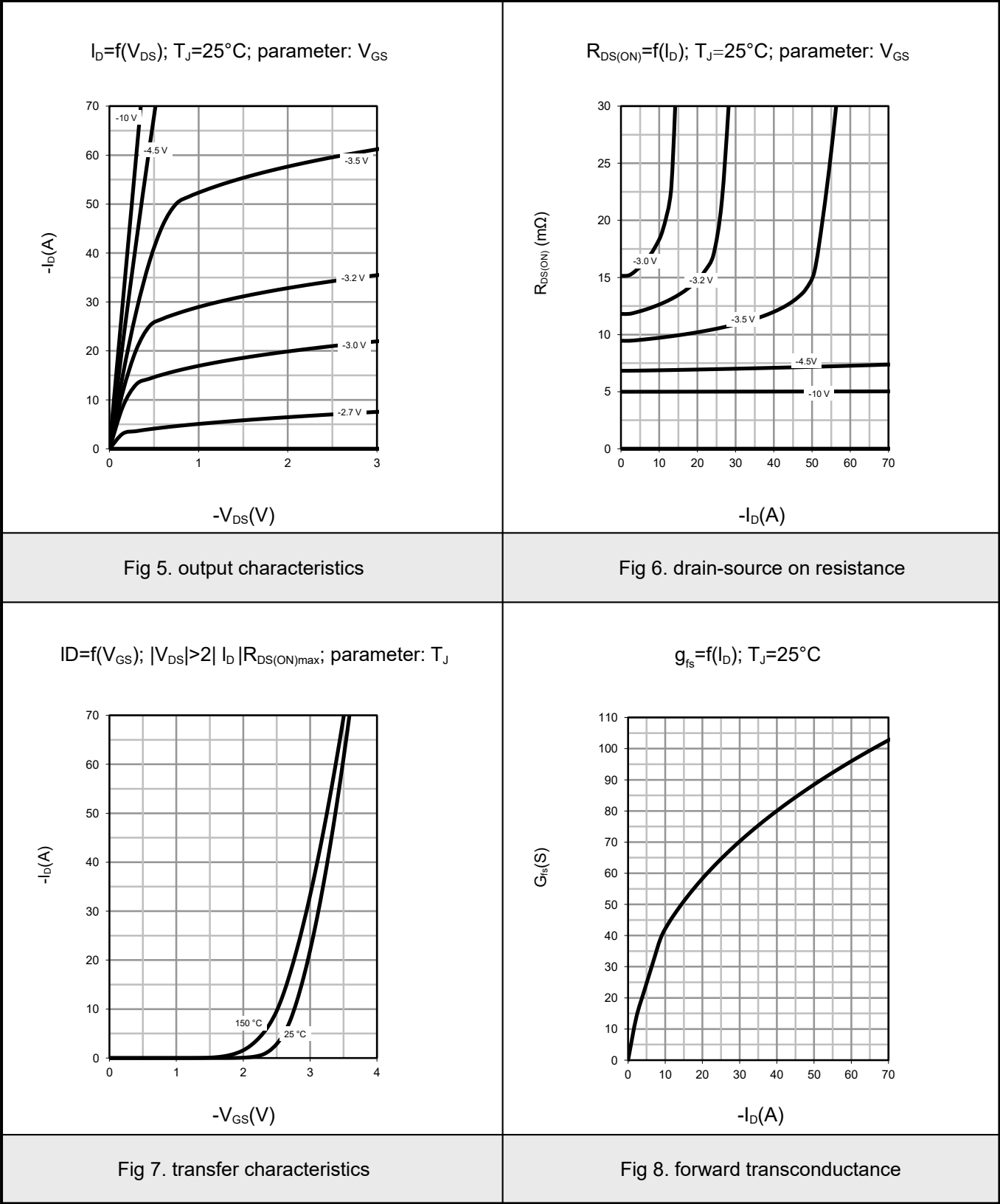


5.1Typical characteristic



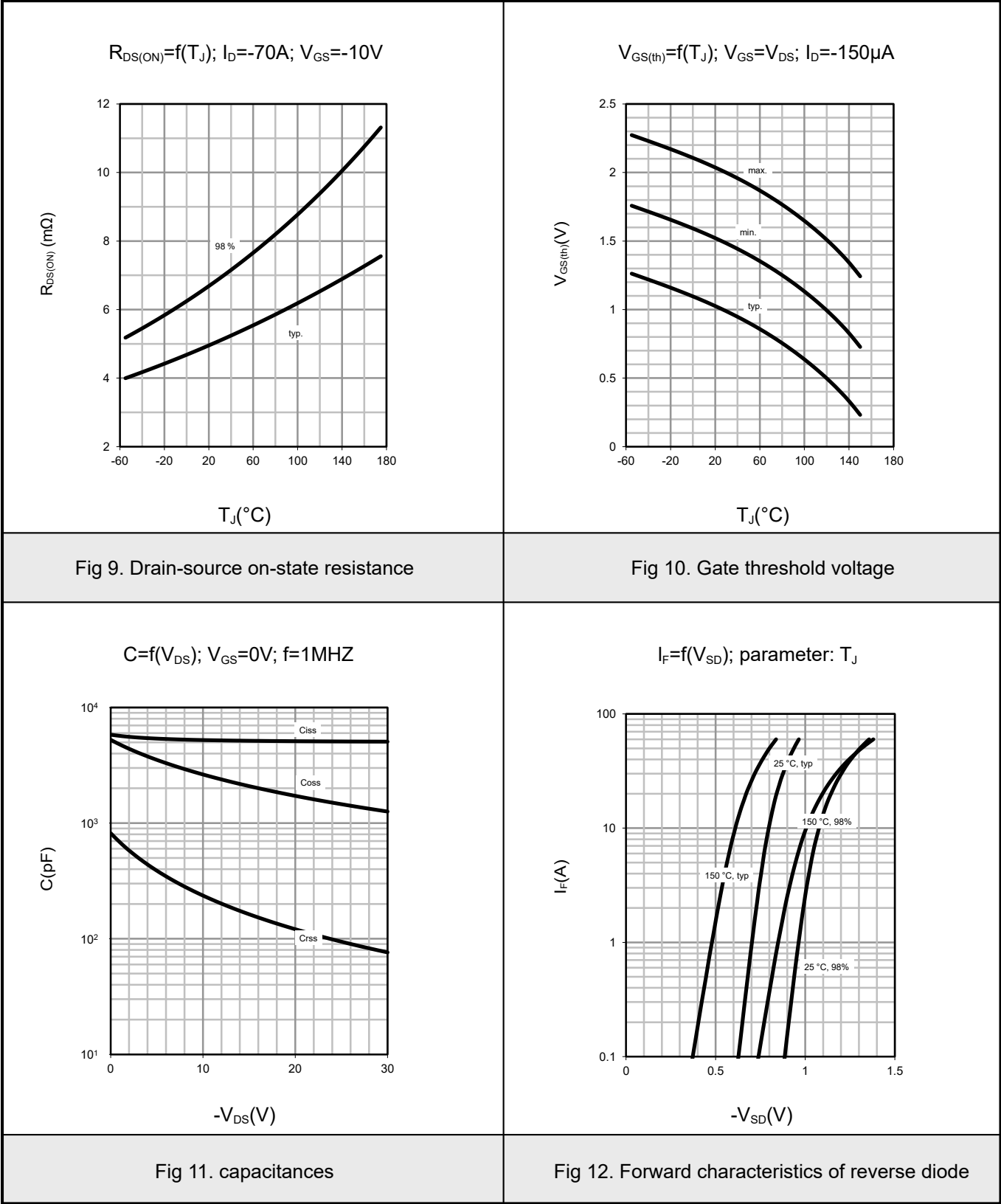


5.2Typical characteristic



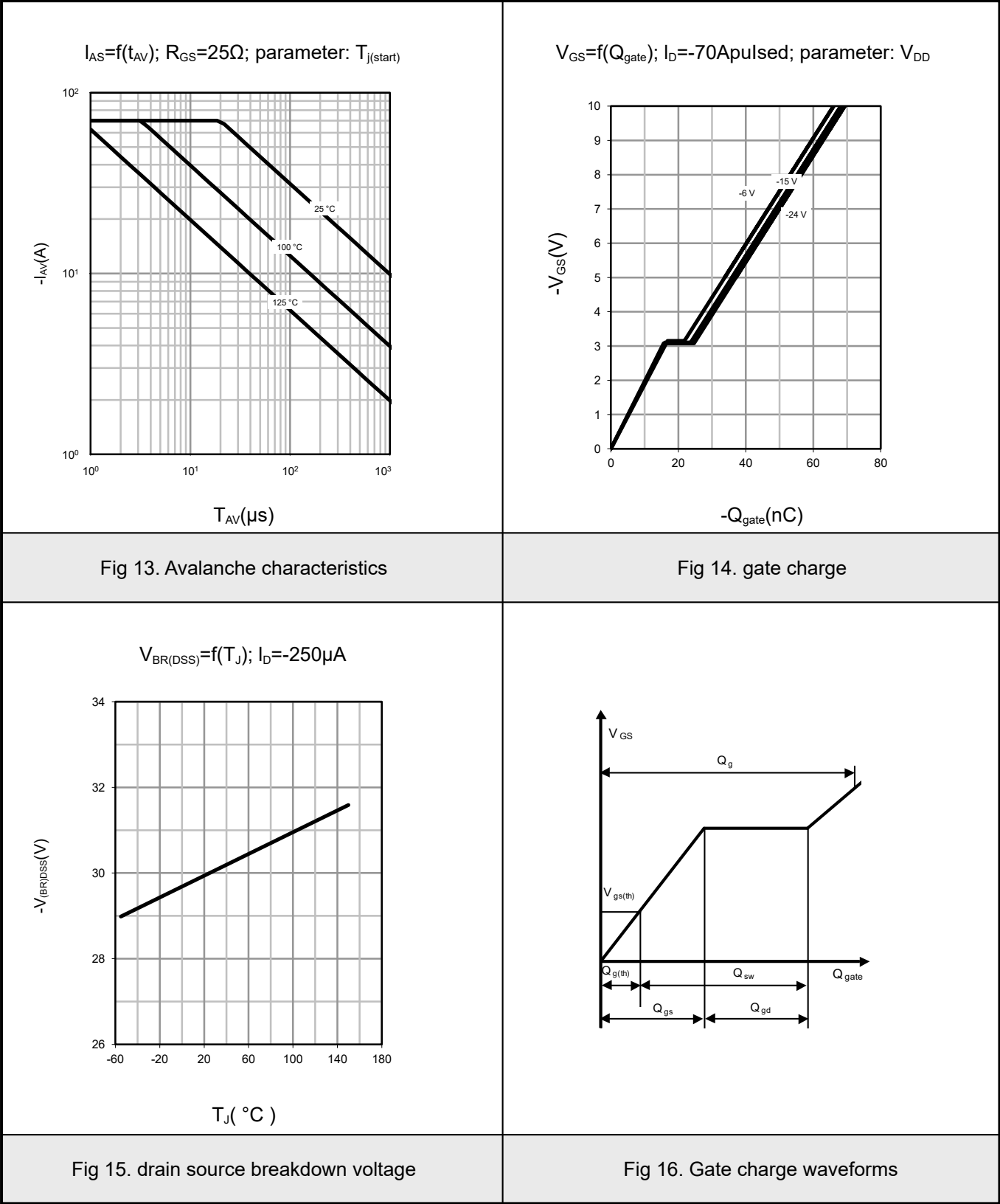


5.3Typical characteristic



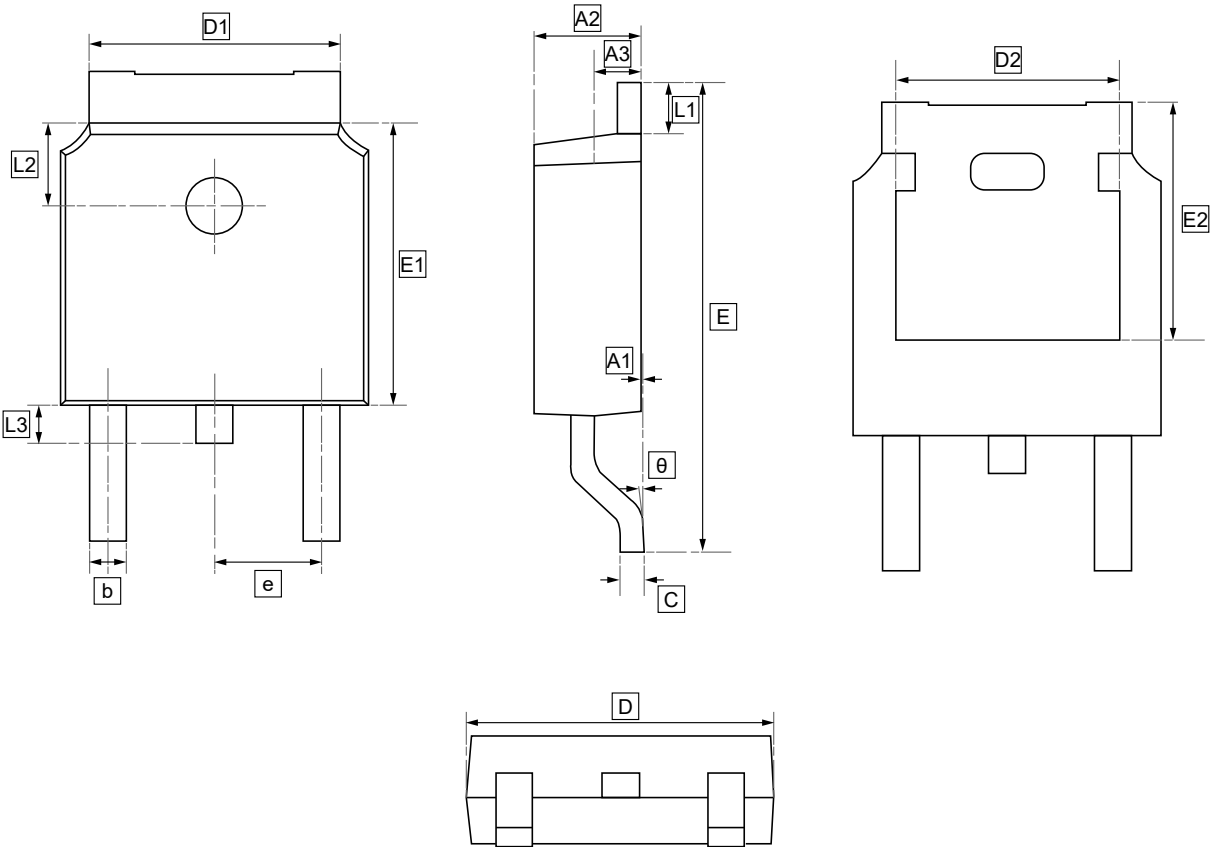


5.4Typical characteristic





6.TO-252 Package Outline Dimensions

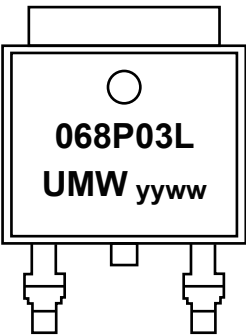


DIMENSIONS (mm are the original dimensions)

Symbol	A1	A2	A3	b	c	D	D1	D2	E	E1	E2	e	L1	L2	L3	θ
Min	0.00	2.18	0.90	0.65	0.46	6.35	4.95	4.32	9.40	5.97	5.21	2.286 BSC	0.89	1.70	0.60	0.00
Max	0.13	2.39	1.10	0.85	0.61	6.73	5.46	4.90	10.41	6.22	5.38		1.27	1.90	1.00	8.00



7.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW IPD068P03L3G	TO-252	2500	Tape and reel



8.Disclaimer

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